Limit Value Detection for Pharmaceutical Vessel Applications

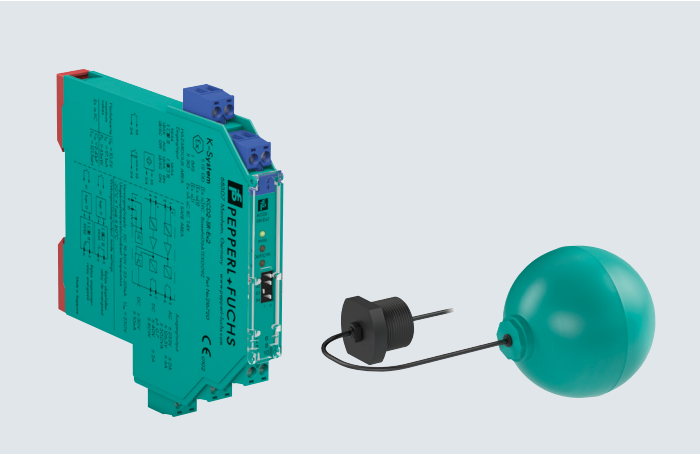
Float Switch and Intrinsic Safety Barrier for Point Level Detection

At a Glance

- Economical solution for detecting minimum or maximum levels in a pharmaceutical vessel
- Ex point level detection possible when connected to a Pepperl+Fuchs intrinsic safety barrier
- Reliable solution to prevent the vessel from overflowing during abnormal operation

The Application

A customer had a project to control a dosing process for a new pharmaceutical product that was part of the COVID-19 vaccine. The application was in a hazardous area, and part of the project was to control the level of wastewater in a vessel. The idea was to send the level in the vessel back to the controller to maintain the level between two points.
The continuous control was performed by weighing the vessel to send the level of medium to the controller. We noticed that the container had no high-high level alarm if the strain gauge or the pump for the container failed, which would cause the container to overflow.



The Goal

The challenge in this application was to provide the project manager with a cost-effective and reliable solution to prevent the vessel from overflowing during abnormal operation in an explosive environment. The level detection method could not rely on conductivity because the waste was sometimes distilled water, which capacitive probes cannot process. Also, there could be dense foam covering the top layer, which would make ultrasonic and some radar technologies unreliable.

The Solution

The most reliable and economic solution for the application were the Pepperl+Fuchs KCD2-SR-EX2 intrinsic safety barrier and the LFL1-CK-N-CSM5 series float switch. Multiple vessels had to be equipped. In the event of a failure of the continuous level method, or a failure of the pump system, the LFL1 float switch notifies the operator of the alarm overflow state via the intrinsic safety barrier before the vessel overflows.

The customer chose us for this solution since they had already installed proximity sensors, intrinsic safety barriers, purge and pressurization components, as well as HMI products for the control cabinet, and intrinsic safety protection for the field devices in previous projects related to the application. We informed them of the overflow potential in this application and offered a quick, complete, and inexpensive solution consisting of an intrinsic safety barrier and the float switch.

The Benefits

The LFL float switch is a simple and low-cost solution for detecting minimum or maximum levels in a tank or container. It provides redundancy when another method of level detection fails. When used in conjunction with a Pepperl+Fuchs intrinsically safe switch amplifier, it provides a simple and economical solution for point level detection in explosive environments.

Technical Features

- Mercury-free, inexpensive float switch for detection of most fluids
- Various float and cable materials for most corrosive fluids
- Ball or float options depending on density of material
- Outputs available as contact, PNP, and NAMUR
- Accessories available for easy installations

For more information, visit: **www.pepperl-fuchs.com/px-level**